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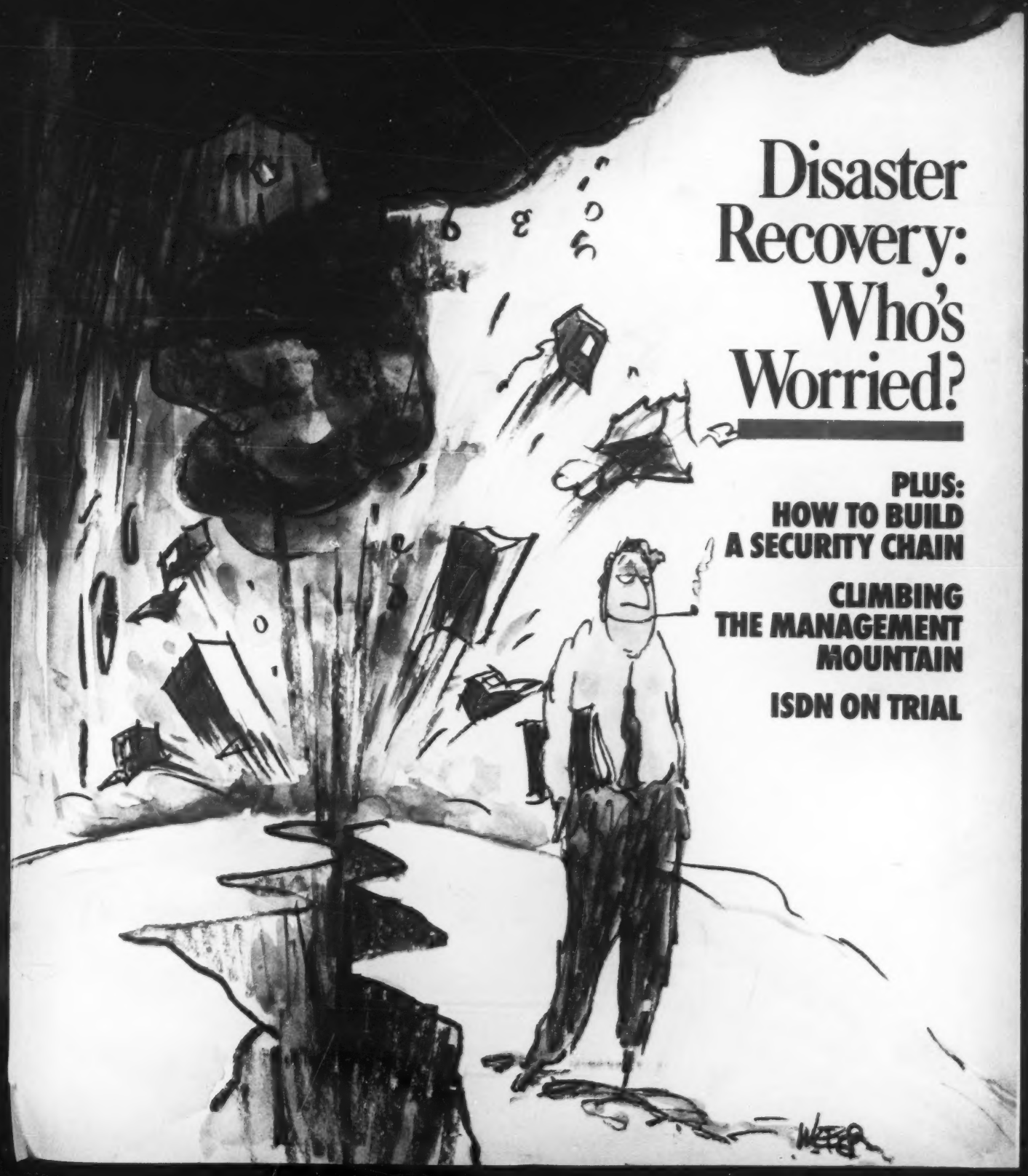

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COVER ILLUSTRATION BY ROBERT WEBER

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Editorial

The Short Side of Short-Term Focus

Downsize. Maximize near-term results. Together these form the foundation of the new American business credo. The new thinking is making Wall Street happy, stockholders wealthy, and helping to keep corporate raiders at bay. It has also cost thousands of Americans their jobs and, if it continues unchecked in the information processing business, it may well cripple this industry's long-term future.

In themselves, downsizing and the pushing of quarterly profits are not dangerous or even wrong. For many companies in the industry, the credo makes a good deal of sense. The computer boom of the late 1970s and early 1980s and its heady sales often left even the smartest executives with bloated organizations and obsolete product lines.

The targets of downsizing, though, are too often research and development and new product engineering. These are the very elements that when nurtured ensure a future beyond the next quarterly statement. They are also, unfortunately, among the easiest budgets to cut and provide the fastest jump in short-term profits.

That understanding hasn't escaped even the biggest corporations in the business. AT&T's recently announced plan to cut nearly 28,000 workers and write off $3.2 billion against earnings directly targets development positions in its Communications and Information Systems Group and reductions, through attrition, of research positions at the company's Bell Laboratories—an organization that could be called America's national treasure for research.

IBM's early retirement program, affecting 10,000 and aimed at saving $1 billion a year, includes its own highly renowned chief scientist, Lewis Branscomb. AT&T and IBM aren't alone. Virtually every company in the business has adopted a downsizing strategy, and too many are attacking their scientific underpinnings to pull it off.

Cost-cutting is necessary, but attacking the scientific and engineering cornerstone of the industry must cease before its short-term dreams turn into long-term nightmares.

GEORGE DAVIS
EDITOR-IN-CHIEF

and put pressure on French officials, the government in Bonn referred the proposed merger to the West German Federal Cartel Office for a review of the competition issues involved. Though the office has given a general go-ahead to the deal, it is still trying to work out the details.

Meanwhile, in support of AT&T, the FCC threatened to impede Siemens' progress in the U.S. switching market by imposing tighter restrictions on the award of public switching contracts to foreign suppliers.

A Slice of the Market

Though CGCT's future may still be uncertain, the battle for control of a minority share of this small French supplier demonstrates the desperation of telecommunications companies to gain a firm foothold in Europe. The reason is simple—they all want a slice of Europe's growing telecom market.

Following the European Commission's recommendation that members build an ISDN between 1988 and 1993, tenders from many countries' PTTs are expected to go out over the next three years. This call for new technology will speed standardization among suppliers, but the real crunch will come in the mid-1990s, when PTTs expect to install a further generation of technology in the form of broadband switches.

SCS's Arnold believes that no existing companies will be strong enough to meet this demand. "Companies will then have to be joined together. U.S. competitors will be very threatening, but Europe has a good chance of holding onto its own markets if governments and suppliers fully understand the infrastructure of Europe's telecommunications and the meaning of liberalization."

Also facing this daunting challenge are a number of smaller European telecom companies—Italy's Italtel and the U.K.'s Plessey.

Like other European manufacturers, Italtel has little choice but to attach itself to a major supplier. For the Italian company, that is an invidious position since it was a founding member of the Big Four group with France's CGE/Alcatel and the U.K.'s Plessey and GEC. The group was set up in 1984 to promote the development of common switching technology and, later, cooperative marketing. It foundered when the CGE-ITT and Siemens-GTE accords were struck. CGE's acquisition unbalanced the venture and Siemens' accord with GTE rankled Italtel, whose Linear UT switch was originally based on GTE technology.

One option open to Italtel and its smaller colleagues is to join the CGE-ITT venture. Belgium's Société Générale de Belgique and the Spanish PTT company Telefonica are considering joining. Plessey, GEC, and Italtel's state holding company Stet each turned down an invitation to join, however, because they would not get an asset stake.

The trouble for these smaller suppliers is that if they don't make European pacts, they will be vulnerable to larger predatory suppliers. Sweden's Ericsson, for example, is taking a keen interest in Italtel. Canada's Northern Telecom, meanwhile, was rumored to have approached ITT about its European operations at one stage, and is still eager to forge new agreements in Europe.

But if Europe's telecom vendors are to be among the victors over the next decade they must choose partners carefully. "Get fit, rationalize [streamline], seek opportunities beyond your domestic market to remain profitable, and find partners to share your technology costs," counsels Dataquest's Mier. ■

TERMINALS

New Rules for an Old Game

As IBM ships a new and cheaper terminal, plug-compatible vendors face new opportunities and pitfalls.

BY ROBERT J. CRUTCHFIELD

If it didn't say "IBM" on the 3191 terminal, users might mistake Big Blue's latest offering for the plug-compatible competition. Unlike its predecessor, the 3178, the 3191 actually adopts some of the competition's features—it's smaller, has ergonomic features, and, most important, it has a sharp price.

As a low-cost display, the 3191, which was introduced last June and just began to be shipped in volume last month, is poised to compete against the lower-cost competition. The new terminal has a much smaller footprint than previous terminal offerings as well as an improved display and keyboard, and it has an optional three-year warranty.

"The significance of the 3191 is that it is designed to be inexpensive. It is built from the ground up in a fully automated facility," says Joe Wagner, an analyst for Dataquest, a research firm in San Jose. "The terminal gives IBM room to cut prices."

Sharper pricing, automated manufacturing, an optional three-year warranty, and more features have forced plug-compatible vendors to play the game by a new set of rules.

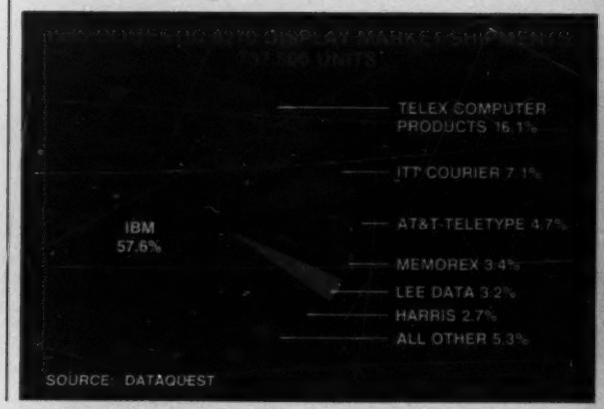
Offshore manufacturing isn't enough. To play the new game, plug-compatible vendors must match IBM's features and warranties while offering their products at a lower price—and still at a profit.

This is not an easy task in today's market. The 3191 lists for $1,200. An MIS executive for a large energy company, however, says he has been offered the product in large quantities for $600 each.

"We have heard reports that the 3191 is being discounted," says Irene Goldman, an analyst at International Data Corp., Framingham, Mass.

At press time, IBM was unavailable for comment on 3191 pricing.

Dataquest estimates that in 1985, IBM and the rest of the 3270 terminal vendors



shipped 737,500 terminals. That number rose 11% in 1986 to 833,000, but despite the jump in terminal sales, dollar volume for the year dropped to $1.42 billion from $1.48 billion in 1985.

According to analysts, IBM has remained a formidable competitor in the terminal market, although in 1985 it slipped one percentage point in market share to the plug-compatible competition, mainly Telex. In 1985, IBM had 57.6% of the 3270 market, followed by Telex with 16.1%, ITT Courier with 7.1%, AT&T-Teletype with 4.7%, Memorex with 3.4%, Lee Data with 3.2%, Harris with 2.7%, and the remaining companies with 5.3%.

Competitors Strike Back

But even in this new era where more terminal shipments mean less dollars, some plug-compatible vendors are holding their own.

Instead of going offshore for margins, Telex Corp., headquartered in Tulsa, Okla., has made a large investment in a fully automated terminal manufacturing facility in Raleigh, N.C., and an automated distribution and repair center in Tulsa.

Last week, Telex introduced its entry into the 3191 market, the Telex 191, which will initially be available only in the U.S. Like the 3191, it is built in a completely automated facility to keep costs down. The 191 attaches to either a Telex or an IBM control unit. It offers an 88-key keyboard or a recently announced 122-key keyboard. An added optional feature is the ability to attach a light pen or a message printer. The 191 lists for the same price as its IBM counterpart, with a 90-day warranty.

According to Mike Bowman, product manager for Telex's 3270 terminals, the company will be competitive with IBM on volume discounts and warranty periods, which run as long as three years.

Other vendors to enter the 3191 market include Beehive International (with an enhanced 3278 offering) and Memorex, both in San Jose. ITT Courier, also in San Jose, is readying its 3191 entry for a March announcement.

"It is an overriding situation. Plug-compatible vendors must have a 3191-compatible product because that is now the entry point for 3270 terminals," Wagner says.

As terminal prices drop, plug-compatible vendors have to look to other segments of the market to make up for slipping 3270 margins.

"Telex has expanded into new markets that complement and expand our 3270 [offerings]," says Pat Reiner, vice president of marketing and product planning for Telex. "For example," she says, "in July of last year, we announced a new series of airline [reservation] terminals. In September we introduced the C078 voice/data terminal, and in November we entered the System 3X market with nine new products."

"THE TERMINAL GIVES IBM ROOM TO CUT PRICES."

Analysts also say that specialized products like the voice/data terminal and airline reservation terminals can still command higher prices and margins for Telex. Companies such as Lee Data, Minneapolis, and Memorex are the only terminal vendors now offering a more diversified product line.

Another area in which Telex is doing well is control units. At the time of the 3191 announcement, IBM also said it would add multiple sessions and windowing capabilities to its control unit, but Big Blue has yet to offer a control unit with these features. However, analysts say IBM is readying products with these features for release sometime in the first half of this year.

Taking Advantage

In the meantime, companies such as Telex are taking advantage of the time by bringing out products that match IBM's direction.

Telex recently introduced its 274 control unit with windowing, which allows 3270 terminals to configure up to four displayable windows of four different host sessions. Data can be copied from one window to another, even if one of the windows is an ASCII host session. The control unit also supports the IBM 3179G graphics support feature, which enables an attached 3179G to use the all-points-addressable (APA) graphics support available from the host computer.

According to Telex's Bowman, when his company incorporates announced features from IBM, as in the case of the control unit, the vendor must adhere to strict compatibility.

"These vendors don't want to jepordize their plug compatibility. They don't want to extend themselves too far away from IBM," says IDC's Goldman.

In the short term, IBM is taking a very aggressive posture in the 3270 business as it attacks its competition's strongest selling point—price. But, until IBM can deliver all it has promised in the area of control units, there is plenty of room in the market for the plug-compatible vendors. ■

LANGUAGES

What the Countess Didn't Count On

Ada continues its slow march to the dp world, but can it shake off the DOD image?

BY EDITH D. MYERS

Ada, the Department of Defense-mandated programming language named for Ada Augusta Byron, Countess of Lovelace, is hardly topping the wish lists of corporate MIS managers.

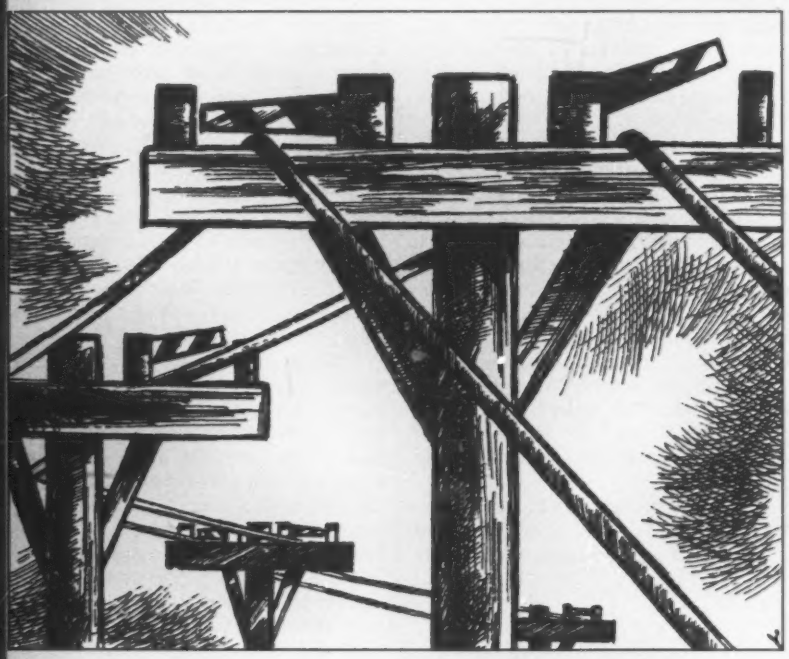
There are those who think it should and those who think it someday will (see "Ada Fans Say Now's the Time," May 15, 1984, p. 38), and there are some things happening that could propel the language into a prominent position in the world of commercial data processing. Foremost in most minds was IBM's seeming endorsement of the language when it leaked news at a SHARE meeting in August that it would be offering Ada compilers and productivity tools for 370 systems running under MVS and VM/CMS. This disclosure eventually materialized as an agreement between IBM and Telesoft, San Diego.

Despite the IBM imprimatur, Ada apparently still has neither extended its identity nor ventured beyond the military/industrial world. One of those reasons, of course, is the entrenchment of languages such as COBOL in data processing departments. Another is the relatively re-

ABSTRACT

The line tariffs set by telecom authorities around the world are often complex and always confusing for the user. Despite a reduction in many of these tariffs over the last few years, it is only users who understand the complexity that will benefit. That situation will get worse with the introduction of volume-sensitive tariffs for leased lines.

Tariffs Get Tougher



BY CHRIS BUCKLEY

First the good news. During the past two years, there have been reductions in the cost of using most European telecommunications networks. Now the bad news. The increasing complexity of tariff structures has made it harder than ever for users to reap the benefits.

Even so, those price reductions are significant. A sample of tariffs in six major European countries shows that line costs have dropped for most types of networks. Since 1984, for example, the average cost of public switched telephone networks (PSTNs) has fallen by 11%, tariffs for leased circuits have been reduced by 6%, and prices for packet switched data networks have dropped by 10%. The one type of network that has not benefited from these changes is the circuit switched data network (CSDN), where the average cost has risen by 4% over the past two years.

On the face of it, that's a happy picture. These tariff reductions reflect a trend that is both realistic and likely to continue over the next few years. Within that overall trend, however, lie many detailed changes to rates for particular facilities, distances, times of day, or locations. The effect upon individual customers is that future costs become increasingly unpredictable because their best laid plans can be easily upset by the continual shifts in tariff structures. The result is that many organizations will never achieve anything like these levels of savings in their line costs.

One reason is that such average figures are fine for the theoretically average company but bear little resemblance to the real world. In practice, companies able to spot the opportunities will gain much more, either in the form of cost reductions or in better facilities. But companies without the knowledge and expertise to manage their telecommunications will be much worse off.

A recent study in the U.K. shows the extent of the problem. When British Telecom announced new tariffs, the line costs for two firms, both needing intracompany voice and data communications, were analyzed by a consultant. The results showed that PSTN charges for one company increased by over 16%, while for the other company those charges were reduced by almost the same amount. Furthermore, private network line rentals for both companies rose, but

by over 8% for one and less than 2% for the other.

The reason for these differences lies in the detail of the tariff changes. Because the tariff changes involved different time allowances, distance rates, and special reductions on some high-traffic routes, the effect upon each company depended heavily upon its own traffic requirements.

This kind of complexity has become a strong feature of all European carrier tariffs. The consequences for users are simple: they can choose the cheapest and/or best option only if they know what it is. It is worth spending the time finding out.

Beware the Carriers' Trap

One trap that users should be aware of is the way carriers plan for future demands, and develop their networks and tariffs accordingly. When the telecom authority puts its network in place, the pressure is on to fill the extra capacity with revenue-earning traffic. The long time scales involved in developing telecommunications networks make the capacity filling role of tariffs a very important device. Hence, the user can find itself in the sad position of moving to a new service in its early days, when it is cheap, then being faced with subsequent large increases in charges as the chosen network grows.

A comparison between different PSDNs in Europe illustrates this point. Tariffs for the very successful French PSDN Transpac have matched inflation over the past two years, whereas the networks in Sweden and the U.K., which are not yet as successful, both show tariff reductions over the same period (see Figure 1).

For most users, the bulk of telecommunications expenditure on carrier networks goes on voice, and this will continue for many years. Even with data traffic growing rapidly, advanced multiplexing increases channel efficiency, and so helps to keep costs down. Similar developments can happen for voice traffic only if compaction techniques become widespread on carrier switched networks. Without competition (still the case in most countries), the carriers do not need to hurry this development and can protect their revenue.

Most carriers, even without the spur of competition, recognize the need to reflect in their tariffs the introduction of more efficient transmission techniques. That is especially true for data services where users are able to pack more and more traffic onto leased lines, using better and better multiplexors. That means smaller and smaller revenues for the carrier. Not a good business strategy.

The solution for the carriers is to charge in proportion to bandwidth, or more correctly in a digital era, in proportion to bit rate. Unfortunately for the user, the carrier cannot know how much of the available bit rate on, for example, a leased circuit is actually carrying information. By using advanced modems and efficient protocols, one user might well get five or 10 times as much actual information through a channel as another, less efficient user. The carrier is likely to assume that all users are efficient, since that way it doesn't let any revenue slip away.

The West German PTT has led the way on volume-related tariffs for leased circuits with a phased program stretching into the 1990s. The method of implementation is centered on thresholds of usage volume. In the early stages, the threshold is set high, so that few users will have sufficient volume of traffic to exceed the threshold. Consequently, their leased circuit charge will be the same each month. Beginning this year, however, the threshold volume will be reduced annually, so that more and more circuits attract volume-related charges. By the early 1990s, West German users of most data circuits will be paying costs related directly to volume.

Some carriers will follow policies similar to the West German PTT's. France, for instance, has already announced its intention to introduce volume tariffs over the next few years. Other carriers, meanwhile, will achieve the same objectives by implementing other tariff policies:

- making leased circuits more expensive in comparison to public switched services in order to discourage the development of more private networks;
- offering telecom facilities management services;
- allowing, encouraging, or providing value-added network (VAN) services.

Private Nets Will Increase

Yet, the carriers have a problem here. There is no real possibility of carrier services becoming as advanced as those offered by the private networks of the most communications minded organizations. The capital and skills required are in short supply, and continual development is the norm. In consequence, it is likely that the number and size of private networks will nevertheless increase, rather than decrease, as more companies discover the commercial benefits of well-

FIGURE 1 Europe's Tariff Trends

(1984 Average = 100*)

COUNTRY	PSTN 1984	PSTN 1986	LEASES 1984	LEASES 1986	PSDN 1984	PSDN 1986	CSDN 1984	CSDN 1986
France	79	79	89	105	46	49	51	53
West Germany	143	125	200	145	81	84	171	186
Italy	114	89	69	89	-	68	-	-
Spain	119	108	172	161	268	244	-	-
Sweden	44	38	36	30	52	46	78	72
U.K.	101	95	33	34	53	48	-	-
Averages	100	89	100	94	100	90	100	104

*Each figure in the table is based upon a package of key facilities for the network and adjusted to take account of national inflation rates.

Source: Pactel

PLANNED ISDN TARIFFS APPEAR TO RELATE MORE TO EQUIPMENT AND LINE COSTS THAN MARKET NEED.

tuned facilities. Similar considerations apply to facilities management contracts. These are likely to be suitable only for organizations too small to retain their own telecommunications skills.

VANs offer a better future to both user and carrier. By offering more than a basic transport facility, the carrier can raise his revenues, develop and use his technical strengths, and provide higher-quality services. Because each VAN can be a separate business venture, it can develop fast and be responsive to innovative ideas. Competition is natural for such services. The user gets better choices—and more of them—so the company can choose the most appropriate and most cost-effective solution.

In many industries, such as travel and retailing, VANs are already widespread. The pattern that is emerging is for the pioneer user of the VAN to gain a major business advantage, and for competitors to be forced into following as fast as they are able.

For many applications, users are able to negotiate a fixed rate per site for the use of a VAN service, thus insulating them from unpleasant tariff surprises. Although similar to facilities management at first sight, there is a key difference. With a VAN, the user is buying a particular business service, rather than a general contract for telecommunications facilities. It can therefore assess its value in strict business terms.

These kinds of carrier services are expected to become much more common when the Integrated Services Digital Network (ISDN) technology is introduced in most countries over the next few years. ISDN offers the user one-stop shopping for telecommunications by providing integrated access to a range of different services. This has obvious benefits for the user, in the form of simpler interfaces and access to a greater range of services.

Users will expect, however, to pay less for ISDN than they do currently with multiple interfaces and links. It is not yet clear that carriers recognize this simple fact. A user requiring precisely the same capacity as that offered by standard multiple-channel ISDNs will be rare. Most potential users will want combinations of channel types that do not fit easily into the standard interfaces.

The new tariffs must reflect the consequent inefficiency of ISDN access links. The most likely success route for carriers is to offer a tariff structure that allows the user to pay in proportion to the capacity it uses, rather than the capacity provided. In other words, volume tariffing. Apart from West Germany, though, current tariffs planned for ISDN appear to relate more to equipment and line costs, and perhaps to maximum capacity offered, than to the market need.

But ISDN is still some years away for most users. In the meantime, they will have to cope with complex and changing tariff structures in each country. Figure 1 shows a number of these national trends. In France, for example, there have been above-average increases in all except the PSTN, while in West Germany, the PSTN, leased lines, and CSDN are very expensive in spite of recent reductions. In the U.K., there has been a reduction in the costs of the PSTN and PSDN, but little overall change in leased lines.

IN INDUSTRIES SUCH AS TRAVEL AND RETAILING, VANS ARE ALREADY WIDESPREAD.

Generally speaking, there is no consistent pattern. Instead, these changes show that there are different policies at work in different countries, reflecting the very different aims of the carriers. For example, the rise in lease rates in Italy will help the developing PSDN to attract traffic. The high rates in Spain will undoubtedly decline as the PTT network is expanded in the next few years. In Sweden, the developing PSDN will attract some traffic from the well-established CSDN, but not at a rate that will cause a sudden surge in demand. In France, the lack of PSTN reductions will finance further investment in new technology.

This pattern of local difference between countries can be expected to continue into the foreseeable future. For the user, it makes planning difficult and risky. But for users prepared to put in the effort, it also offers the chance to select the attractive options and use them to advantage. ■

"This is a bad story. This is a bad, BAD, story! Please take this bad, bad story and go far, far, FAR away!"

Cartoon by Nick Downes

Chris Buckley is a telecommunications specialist based in London. He is in charge of the Telecommunications Networking Group of U.K. consultancy Pactel.

CIRCLE 67 ON READER CARD →